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Differentiation of creative mathematical problems for primary school students

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Abstract

© 2017 Authors. The purpose of the study is to reveal a method that will help arrange creative mathematical problems for the development of creative competences of the basic school students. The main method here is modeling of creative mathematical problems taking into account the complexity levels of the tasks in accordance with the systemic scale and the requirements for the formulation of creative tasks in basic school. The article presents author's approaches to the differentiation of creative mathematical tasks for basic school students in accordance with the systemic scale, which were formed by adaptation of creative problem solutions classified in terms of their degree of difficulty and the quality of the obtained results, considered in the theory of inventive problems solving. The author proposes a system of requirements for the creative mathematical problem such as the contradiction in the condition of the problem, the sufficiency of the condition, the rectitude of the question, the independence of facts, the completeness of information, and scientific consistency. The system of requirements allows to preserve the didactic value of the proposed mathematical problem. As a result of experimental research and experiential teaching using creative mathematical tasks, the proposed differentiation and the system of requirements for the condition were successfully tested. That contributes greatly to the development of creative competencies of students in the basic school and their ability to solve creative math problems. Practical use of creative mathematical problems makes it possible to increase schoolchildren's interest to study mathematics and show interdisciplinary connections with various disciplines, e.g., informatics, chemistry, biology.

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Keywords

Children, Creative tasks, Mathematical education, The systemic scale

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